Delta Vision

Context Memorandum: Sustainability

This context memorandum provides critical information about sustainability to support policy making. As they are developed, the context memos will create a common understanding and language about the critical factors in establishing a Delta Vision.

This is an iterative process and this document represents the beginning of a dialogue with you about how best to understand sustainability and to inform recommendations by the Delta Vision Blue Ribbon Task Force. You have two weeks to submit comments that may be incorporated into the next iteration.

You may submit your comments in two ways: either online at dv_context@calwater.ca.gov or by mail. If you are using mail, please send your comments to: Delta Vision Context Memo: Sustainability, 650 Capitol Mall, 5th Floor, Sacramento, CA 95814.

Your attributed comment will be posted on the Delta Vision web site (http://www.deltavision.ca.gov). Please cite page and line number with specific comments; general comments may be keyed to sections.

Your participation in this iterative process is valuable and important and is greatly appreciated. Thank you for your comments.

Context Memorandum: Sustainability

Iteration 2: June 15, 2007

Section 1. General Policy

On September 28, 2006, Governor Schwarzenegger issued Executive Order S-17-06 (Executive Order) initiating the Delta Vision and ordering the Blue Ribbon Task Force (Task Force) to "develop a durable vision for sustainable management of the Delta." The purposes of this context memo are to: (1) characterize the working definitions of sustainable and sustainable management; and (2) provide the Task Force with a framework for sustainable management policy development.

The Executive Order defines sustainable management as "managing the Delta over the long term to restore and maintain identified functions and values that are determined to be important to the environmental quality of the Delta and economic and social well being of the people of the state." This definition centers upon the competition for resources among the nine identified Delta services:[1]

- Land Use (agriculture, urban, and conservation)
- Flood Management
- Ecosystem
- Water Supply
- Water Quality Management and Discharges
- Transportation
- Utilities
- Recreation/Tourism and
- Local and State Economics.

The geographic scope of these services reaches beyond the legal Delta as defined in the Delta Protection Act. Global economic issues such as commerce and navigation may impact the Delta as much as local power production or urbanization. The geographic extent of services impacting the Delta is important for purposes of evaluating sustainable management because it complicates the management actions needed to sustain the Delta. Accordingly, to develop a strategy to sustainably manage the Delta in the context of the nine services, the Task Force will need to:

- Evaluate the geographic reach of the services impacting the Delta environment.
- Connect the human actions and governance structures relevant to those services.

[1] These services are identified in the *Status and Trends of Delta-Suisun Services* document. A slightly different set of "uses and resources" is identified in Executive Order S-17-06 of Governor Schwarzenegger dated September 28, 2006. The Executive Order includes "Emergency Response" and combines "Water Supply and Quality."

- Measure the impact of those services on the Delta environment and the economic and social well-being of the people of the state.

Sustainable management of the Delta – in the context of the nine identified services – has been imbedded in numerous political efforts for over 30 years. In 1974, the California adopted the Suisun Marsh Preservation Act (SMPA). The SMPA directs the San Francisco Bay Conservation and Development Commission (BCDC) and the Department of Fish and Game to "preserve the integrity and assure continued wildlife use" of Suisun Marsh. In 1992, the state revised the Delta Protection Act[2] (DPA) to:

> protect, maintain, and where possible, enhance and restore the overall quality of the Delta environment, including but not limited to agriculture, wildlife habitat, and recreational activities [and to] assure orderly, balanced conservation and development of Delta land resources and improve flood protection by structural and nonstructural means to ensure an increased level of public health and safety.

In 2000, the CALFED Program sought to "develop a long-term comprehensive plan [to] restore ecological health and improve water management for beneficial uses of the Bay-Delta system." More specifically, CALFED was directed to:

> (1) restore the ecological health of a fragile and depleted Bay-Delta estuary; (2) improve the water supply reliability for the State's farms and growing cities that draw water from the Delta and its tributaries, including 7 million acres of the world's most productive farmland; (3) protect the drinking water quality of the 22 million Californians who rely on the Delta for their supplies; and (4) protect the Delta levees that ensure its integrity as a conveyance and ecosystem.

In July 2006, export water users and the state and federal resource agencies signed a Memorandum of Agreement (MOA) thereby embarking on an aggressive plan to develop the Bay-Delta Habitat Conservation Plan (BDCP). The goal of the BDCP is to provide for the conservation and management of both listed and non-listed species, as well as the communities and ecosystems that support those species. This process will entail an accurate identification of the geographic scope of the resource, and the geographic scope of actions that impact the resource.

Water Code Section 79473 and the Executive Order are the most recent declarations calling for sustainable management of the Delta.

[2] The original Delta Protection Act was adopted in 1959.

In the context of existing law, policy, and academic information on the meaning of sustainable management, the Task Force will be faced with the following policy questions to develop a program and plan for sustainable management of the Delta:

1) What does sustainable management of the Delta mean?
2) Why is the Delta currently unsustainable?
3) What actions must be taken to achieve sustainable management of the Delta?
4) Who will take the actions?
5) When must the identified actions be taken?
6) How do these actions adjust to "Drivers of Change," such as global climate change?[3]

In short, sustainable management of the Delta requires a social choice about Delta services and what actions are necessary to congruently manage those chosen services.

Section 2. History, Institutions, Policies and Economics of Sustainable and Sustainable Management

The definition of sustainable and sustainable management varies in legal, political, and academic disciplines. The existing definitions may be synthesized into the following four points:

- Sustainable management requires that specific actions be taken in relationship to an identified resource.
- Sustainable management of a resource is a process, requiring actions to be taken over time that result in a sustainable resource.
- Sustainable is not a legal term that mandates certain actions in the context of an identified resource. Existing law can force actions that result in sustainable management practices.
- Sustainable management has no universally accepted meaning in politics or academia. The varied definitions can be synthesized to encompass the three E's – environment, equity, and economic well-being.

Legal Definitions of Sustainable Management. California law is replete with references to the concept of sustainable management, but there is no universally accepted legal definition. In a few instances, the concept of sustainability is embraced

[3] The Drivers of Change are listed in the *Status and Trends of Delta-Suisun Services* Public Review Draft (March 2007, p. 3).

within the context of identified actions affecting an identified resource rather than used as a conceptual or enabling goal.

- The Office of Planning and Research (OPR) has developed General Plan Guidelines for "sustainable development" under Government Code section 65040.12. OPR defines sustainability as the ability to meet the needs of current generations without compromising the ability of future generations to meet their own needs, thus promoting a balance among economy, environment, and equity. OPR narrows this definition for purposes of evaluating sustainable development. Specfically, OPR recommends that General Plans balance suburban growth; open space and working landscapes; local and regional economies; energy and resource efficiency; and equity.

- The California Pollution Control Financing Authority Act and its implementing regulations[4] define "sustainable development" as a project that reduces pollution hazards; promotes infill development; promotes economic development within economically distressed communities; supports alternative transportation options; ensures a mix of business and housing, including affordable housing.

- Sections 552 and 553 of the Food and Agriculture Code define "sustainable agricultural practices" as "organic [farming] methods, biological control, and integrated pest management" and includes "the analysis of economic factors influencing the long-term sustainability of California agriculture."

- California Government Code section 12805.4 discusses a Strategic Vision for a Sustainable Sacramento-San Joaquin Delta that addresses sustainable: ecosystem functions, including aquatic and terrestrial flora and fauna; land use and land use patterns; transportation uses, including streets, roads and highways, and waterborne transportation; utility uses, including aqueducts, pipelines, and power transmission corridors; recreation uses, including current and future recreational and tourism uses; flood management strategies; and other aspects of sustainability deemed desirable.

- Public Resources Code section 35500(d) (the Ocean Protection Act) defines "sustainable" and "sustainability" to mean both of the following: (1) Continuous replacement of resources, taking into account fluctuations and abundance and environmental variability; and (2) securing the fullest possible range of present

[4] Title 4, Division 11, Article 10 of the California Code of Regulations

and long-term economic, social, and ecological benefits, while maintaining biological diversity.

- The Wildlife Conservation Law of 1947, codified at Fish and Game Code section 1300 et seq. embodies the idea of sustainability in the following: " … it is the policy of the State to acquire and restore to the highest possible level, and maintain in a state of high productivity, those areas that can be most successfully used to sustain wildlife and which will provide adequate and suitable recreation. To carry out these purposes, a single and coordinated program for the acquisition of lands and facilities suitable for recreational purposes, and adaptable for conservation, propagation, and utilization of the fish and game resources of the State, is established.

In summary, the statutory references, including the SMPA and DPA, separately address components of sustainability by focusing on preservation, enhancement and restoration of various services, but they do not clearly establish a long-term working definition that reflects the important balancing process between economics, environment and equity that the Task Force may undertake to develop a sustainable management plan for the Delta.

Public Trust & Reasonable Use Doctrines. The Public Trust Doctrine embraces the concepts of sustainability and sustainable management. The Public Trust Doctrine counsels that the state has an obligation to manage public trust assets for the benefit of the general public (both current and future generations). This concept has been adopted in several western states. The California Supreme Court has ruled that the Public Trust Doctrine requires the state to take the public trust into account in the planning and allocation of water resources and to protect public trust uses where feasible and consistent with the public interest. Here the concept of protecting public trust resources for current and future generations is akin to the concept of sustainability and sustainable management. The Public Trust Doctrine, however, is a legal mechanism to mandate sustainable management practices. The Doctrine does not provide a legal definition of what those practices may be in light of the legal application to an identified resource. Those actions are left to the management agencies to develop upon mandate from the Court.

Similarly, the Reasonable Use Doctrine in Article X, Section 2 of the California Constitution has its underpinnings in the idea of sustainable management of water resources. Here the right to use water is "limited to such water as shall be reasonably required for the beneficial use to be served, and such right does not and shall not extend to the waste or unreasonable use…of water." As many commentators have noted,

Reasonable Use has different meanings in different contexts and may change its meaning over time. In fact, some commentators have expanded the idea of reasonable use to include the possibility that one use of water may be unreasonable in light of other competing uses for the same water. Imbedded in the process of evaluating whether a use is reasonable, is the principle of sustainable management of water resources. This balancing process recognizes that water resources are limited and there is a public interest in ensuring that resources are allocated to maximize economic well being and environmental values for current and future generations. This is accomplished through the flexible application of the rule reasonable use, which may be adjusted to address the facts and circumstances of each case.

In summary, both of these mechanisms are passive in that the result concludes "it is in the public interest or is not" or "it is a reasonable use of water or is not." While both of these doctrines do not define sustainability or sustainable water management, they do provide a mechanism for the public to evaluate competing water uses in light of current circumstances. Therefore, these doctrines offer an opportunity to evaluate and modify uses in a dynamic context – over an intergenerational time period. It is worth noting that "balancing competing uses" under these doctrines is theoretical and strong water rights laws and Constitutional provisions may limit their application.

Oregon Law on Sustainability. Oregon enacted a law (2001 Oregon Laws Ch. 918) that mandates the creation of a Sustainability Board to identify, evaluate and propose incentives and the removal of disincentives for the purposes of encouraging activities that best sustain, protect and enhance the quality of the environment, economy and community for the present and future benefit of Oregonians. This law defines "sustainability" as developing and protecting resources in a manner that enables people to meet current needs and provides that future generations can also meet future needs, from the joint perspective of environmental, economic and community objectives. The act Ordered the Institute for Natural Resources at OSU to serve as a clearinghouse for scientifically based natural resources information, and provide this information to state agencies for decision making purposes. Similarly, the Oregon Sustainability Executive Order 03-03 requires development of a "Sustainability Guidance" document by each state agency, encompassing: definitions, strategies for achieving sustainability, and policy directives for achieving economic, environmental and social sustainability, as well as performance measures.

Political Definitions of Sustainable Management. There are numerous political definitions of sustainable and sustainable management. One of the first political definitions was promulgated by the Brundtland Commission as part of the 1987 World Commission on Environmental Development. The Brundtland Commission's definition

of sustainable development is "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." This broad definition is still used today to describe sustainable development in the context of global ecosystems. This definition has a core temporal component where present and future needs are sustained.

The World Wildlife Fund's definition of sustainable development in the context of global ecosystem preservation is "improvement in the quality of human life within the carrying capacity of supporting ecosystems." This definition identifies in a broad sense the resource to be sustained – "supporting ecosystems" – within a specified goal – "improvement in the quality of human life." Accordingly, these definitions illustrate the need to address both an identified resource and the preservation of that resource over time.

Other definitions focus more upon the process of sustainable management rather than trying to define a sustainable outcome. The National Academy of Sciences (NAS) recently defined "sustainability science" as "understanding of the human-environment condition with the dual objectives of meeting the needs of society while sustaining the life support systems of the planet." Furthermore, the NAS has stated that "defining sustainability is ultimately a social choice about what to develop, what to sustain, and for how long." Finally, the World Summit for Sustainable Development has focused upon a "sustainable transition" noting that the process toward achieving sustainability leads towards a sustainable development end.

These political definitions embody the key components of sustainable management of identified resources, intergenerational resource preservation, and developing a process to achieve sustainability.

Academic Definitions of Sustainable Management. The reconcilable dictionary definitions of "sustainable" are "a method of using a resource so that the resource is not depleted or permanently damaged", "avoiding depletion of resources", and "capable of being continued." These definitions can be reconciled to mean that sustainability is an end result that requires a process of actions to accomplish.

Experts in the theory of sustainable management generally identify the following three factors – "the 3 E's" – in examining the sustainability of a resource like the Delta:

(1) Environment– accurate identification of the resource, the geographic scope of the resource, and the geographic scope of actions that impact the resource.

(2) Equity – intergenerational and intragenerational resource sustention for values and uses that may not have been identified

(3) Economic Well Being – accurate identification and consideration of local, regional, and global economic activities related to that resource.

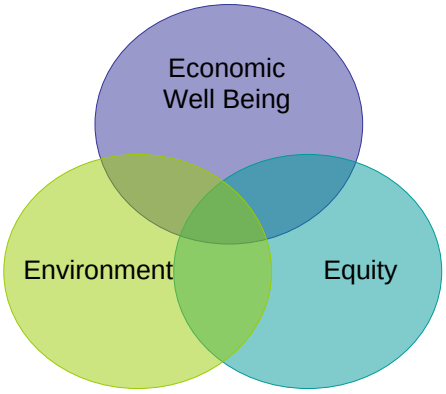

Figure 1 – The 3-E's

Figure 1 illustrates the interaction of the 3-E's. Experts contend that at the intersection of these elements, sustainability is achieved.

Environment. The ecosystem has been identified as one of the primary services of the Delta[5]. Numerous biological and ecological studies have been performed on the Delta, and yet new biological phenomena continue to confound scientists, including the pelagic organism decline on one extreme and then record salmon runs on the other. In California, numerous planning processes have been initiated through legal and political mechanisms to address these environmental conditions with the overarching planning goal of resource sustainability. The preservation and enhancement process requires at least the following four components: (1) an ability to define environmental assets; (2) an ability to assess impacts upon that "environmental asset," (3) an ability to assess the value of the environmental asset; (4) ability to value actions designed to protect the asset.

Equity. The academic literature speaks of equity in terms of intragenerational and intergenerational well being. As it relates to resource management, there is a specific emphasis upon sustenance of the natural resource so that others have an opportunity to use or enjoy the resources in the future. Similar to environmental quality, the attempt to ensure equity is driven by the fact that resources are scarce and humans are seeking to achieve ends now that may or may not consider whether future generations will have an opportunity to acquire and utilize the resources. These resources may be generally placed into two categories: (1) resources that serve as inputs to production processes (e.g., water, soil, natural gas); and (2) resources that also have intrinsic worth (salmon, waterfowl).

[5] See Section 1 for the list of defined Delta Services

Economic Well Being. To consider actions intended to achieve economic well being, it is useful to consider the definition of economics: an evaluation of human behavior between ends and scarce resources which have multiple uses. Each Delta service described in the *Status and Trends of Delta-Suisun Services* document has its own economic framework. Sustainability counsels that not only may economic decisions be limited by the scarcity of the resource itself, but there may be broader public interest reasons for limiting access to certain resources that would otherwise be desired by private entities because of environmental and equity values. The process by which economic decisions are made about each of the Delta services is thus a balancing act between desires to utilize a resource for economic benefits now or in the future and the process by which others seek to protect a resource for the same purposes. These interests may not be mutually exclusive, and many will argue that a market-driven approach will actually sustain the environment for future generations by creating a personal stake in the resource. In the alternative, protection of a resource may require government oversight to protect the resource from extra-geographical resource use.

The following operating principles may be valuable for individuals or entities making business decisions regarding the Delta services: (1) whether use of resources is within regenerative capacities of natural system; (2) whether depletion of nonrenewable resources is at a rate consistent with renewable substitutes developed by human invention and investment; (3) whether the economic system is within carrying capacity; (4) whether technological progress is efficient or induces undesirable wastes; (5) whether a function is within the assimilative capacity of the environment and without degradation of future absorption capacity.

Summary of Sustainable Management. In summary, the legal, political, and academic definitions can be synthesized into the following four points:

- Sustainable management requires that specific actions be implemented in relationship to an identified resource.
- Sustaining a resource is a process, requiring actions to be taken over time that result in a sustainable resource.
- Sustainable is not a legally defined term that mandates certain actions in the context of an identified resource. Existing law can force actions that demand implementation of sustainable management practices.
- Sustainable management has no universally accepted meaning in politics or academia. The varied definitions can be synthesized to encompass the three Es – environment, economics, and equity.

Section 3. References

Context Memorandum: Sustainability

Iteration 2: June 15, 2007

To be developed.